REMARKS/ARGUMENTS

Reconsideration and allowance of this application are respectfully requested. Currently, claims 1-11 and 13-22 are pending in this application.

Rejection under 35 U.S.C. §101:

Claims 1-19 were rejected under 35 U.S.C. §101 allegedly because the claimed invention is allegedly directed to non-statutory subject matter. Applicant traverses this rejection.

In particular, these claims are tied to a particular apparatus (which is directed to a statutory category). For example, independent claim 1 requires "An *automated machine* method of transmitting over a communications network a digital data sequence of video signals which have been encoded using a compression algorithm such that the number of coded bits per frame is not constant, comprising using *a programmed processor* (emphasis added) ...." Similar comments apply to claims 17-18. Independent claim 2 requires "An *automated machine*-implemented method of transmitting a digital sequence of video signals which have been encoded using a compression algorithm such that the number of coded bits per frame is not constant, wherein the source video had been coded into a first sequence and a second sequence having respective different compression rates, said method comprising using a *programmed processor* (emphasis added) ...."

Applicant thus requests that the rejection under 35 U.S.C. §101 be withdrawn.

Claims 2-11 and 17-18:

Claims 2-11 and 17-18 were not rejected under 35 U.S.C. § 102 or 103. As discussed above, these claims are directed to statutory subject matter under 35 U.S.C. §101. Applicant thus submits that claims 2-11 and 17-18 are allowable.

Rejection under 35 U.S.C. §103:

Claims 1, 12-16 and 19 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Azadegan et al (US '900, hereinafter "Azadegan"). Applicant respectfully traverses this rejection.

In order to establish a *prima facie* case of obviousness, all of claim limitations must be taught or suggested by the prior art. For example, Azadegan fails to teach or suggest "wherein the sequence is partitioned into segments such that the first segment is that portion at the beginning of the sequence which has an average number of coded bits per frame which is greater than or equal to the average number of coded bits per frame of any possible shorter portion starting at the beginning of the sequence, and wherein each succeeding segment is a portion immediately following the preceding segment which has an average number of coded bits per frame which is greater than or equal to the average number of coded bits per frame of any possible shorter portion immediately following the preceding segment," as required by independent claim 1.

The invention of claim 1 seeks to find out how to determine where to partition or segment a video sequence so that the maximum number of bits to be transmitted during each segment occurs at the end of each segment. This means that the amount of bandwidth required to transmit the next segment will be less than that required for the previous segment, enabling the amount of bandwidth needed to be reserved for the duration of the entire sequence transmission to be less than the amount of bandwidth which would need to be reserved if the sequence was not segmented.

The invention of claim 1 considers a transmission rate for data which has already been encoded with an appropriate quantization level. Buffer underflow occurs in this situation if too

much data is presented for transmission and there are insufficient network resources to allocate for the amount of data that needs to be required. Accordingly, the invention of claim 1 determines how to best send a video to a receiver by determining how to allocate frames to a video segment to reduce the overall the amount of bandwidth required for sending the whole video.

In contrast, Azadegan considers changing the quality of the video over periods of time by adding or removing bits from frames of video (see col. 23, lines 16 to 17). Thus, a person skilled in the art who started from Azadegan, would learn that if the bits are removed from frames of video to enable the video to be stored in a storage media, the level of encoding or quality of the picture needs to be adjusted (manually).

Whereas Azadegan discloses changing the quality of the video over periods of time by adding or removing bits from frames of video, the invention of claim 1 addresses how to partition a video sequence so it can be optimally transmitted by ensuring that it is divided into segments where each segment comprises a plurality of frames whose encoded bits per frame are distributed over the segment in such a way as to ensure optimal transmission of that sequence at a particular data transmission rate and to ensure that the next segment is best transmitted at a different transmission rate.

Azadegan discloses a system for dynamically adjusting the degree of quantization during the compression or encoding process. In particular, the adjustment is made in accordance with instructions provided by a human operator. However, the invention of claim 1 does not consider the "compression or encoding" process - nor is any adjustment made in accordance with instructions provided by a human operator. One of ordinary skill in the art would thus not have modified the teachings of Azadegan to arrive at the invention of claim 1.

Azadegan encodes digital video to fit within a fixed capacity storage medium based on the bit-rates of future frames as determined in the pre-encoding process. As such, bandwidth reservation, which relates to reserving the capacity to transmit data at a certain bit rate over a communications network is not an issue that Azadegan needs to consider. In Azadegan, the VBR playback mode is clearly for playing back digital video from storage media, and overflow is avoided simply by only reading data from the digital storage medium when the buffer can accept the new data. While buffer underflow is possible, this results from when too little data is used to represent video frames (see col. 1, lines 43 to col. 2, line 45). To ensure that underflow doesn't occur, an appropriate quantization level is manually selected by a user in Azadegan (see Col. 2, lines 47 to 53) to ensure enough data has been used to encode a signal.

As discussed above, however, the invention of claim 1 instead considers a transmission rate for data which has already been encoded with an appropriate quantization level. Buffer underflow occurs in this situation if too much data is presented for transmission and there are insufficient network resources to allocate for the amount of data that needs to be required.

Applicant requests that the rejection under 35 U.S.C. §103 be withdrawn.

New Claims:

New claims 20-22 have been added. New claims 20-22 depend from independent claim 1. Applicant therefore submits that these claims are allowable at least for the reasons discussed above with respect to independent claim 1.

Conclusion:

Applicant believes that this entire application is in condition for allowance and respectfully requests a notice to this effect. If the Examiner has any questions or believes that an interview would further prosecution of this application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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